for combustion be correspondingly diminished. As steam becomes decomposed, hydrogen must make its appearance in the gas, whereby, in consequence of the smaller amount of air, also correspondingly less nitrogen will be present in the gas. As long as the gas remains unchanged it admits of specification of the amounts of its hydrogen and nitrogen contents, as well as of the amounts of steam and air which will serve for its manufacture.

As soon, however, as this gas is burnt by means of air (even if only partially) the simile disappears. Hydrogen, to nay the least, burns as easily as carbon monoxide, and forms thereby water. The amount of oxygen it requires brings a corresponding amount of nitrogen into the gas, and indc.od there appears exactly the same amount as would have boon present had as much less steam takeni part in the gasification as hydrogen which has boon burnt. The phenomenon has already boon made clear for complete combustion (on p. 06.) ; for incomplete combustion the same holds good. This peculiarity results also from the universal formula (1(5)

for steam-air gas, N=8'7(>2 (C0a+ "'' —;-Y according to which

the nitrogen content rises with reduction of the hydrogen content and sinks with increase of the same, whence tho formula, under all circumstances, must retain its validity.

One is, therefore, not in tho position to determine on tho basis of the gas analysis whether the steam-air gas under investigation still exhibits its original composition, or whether it has already undergone partial combustion. Now, ono could reply that steam must result from the combustion of hydrogen, and that one only requires to determine thin in order to obtain explanation of tho original composition of tho steam-air gas and, therefore, also as to the conditions of itn generation. On the other hand, however, it in to bo replied that steam-air gas can only be faultily manufactured, In HO far as undecomposod steam can pass through tho carbon bod and reach the gas, and that this steam differs in no ronpeet from steam which has resulted from the combustion of tho hydrogen of the gas. In reality, however, tho eircumstaneoB are more complicated, since one invoBtigateB not the steam-air